



## IARPA Launches Program to develop a Superconducting Computer

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### NEWS RELEASE

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### IARPA LAUNCHES PROGRAM TO DEVELOP A SUPERCONDUCTING COMPUTER

WASHINGTON – The Intelligence Advanced Research Projects Activity (IARPA), within the Office of the Director of National Intelligence (ODNI), announced today that it has embarked on a multi-year research effort to develop a superconducting computer. If successful, technology developed under the Cryogenic Computer Complexity (C3) program will pave the way to a new generation of superconducting supercomputers that are far more energy efficient.

“The power, space, and cooling requirements for current supercomputers based on complementary metal oxide semiconductor (CMOS) technology are becoming unmanageable,” said Marc Manheimer, C3 program manager at IARPA. “Computers based on superconducting logic integrated with new kinds of cryogenic memory will allow expansion of current computing facilities while staying within space and energy budgets, and may enable supercomputer development beyond the exascale.”

The goal of the <http://www.iarpa.gov/index.php/research-programs/c3> C3 program is to establish superconducting computing as a long-term solution to the power- cooling problem and a successor to end-of-roadmap CMOS for high performance computing. While, in the past, significant technical obstacles prevented serious exploration of superconducting computing, recent innovations have created foundations for a major breakthrough. These include new families of superconducting logic without static power dissipation and new ideas for energy efficient cryogenic memory. A superconducting computer also promises a simplified cooling infrastructure and a greatly reduced footprint.

The energy demands of today's high-performance computers have become a critical challenge for the Intelligence Community that the C3 program aims to address. During the initial phase of the C3 program, IARPA-funded researchers will develop the critical components for the memory and logic subsystems and plan the prototype computer, with the goal to later scale and integrate the components into a working computer and test its performance using a set of standard benchmarking programs.

Through a competitive Broad Agency Announcement process, IARPA has awarded research contracts in support of the C3 program to teams led by IBM, Raytheon-BBN and Northrop



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IARPA invests in high-risk, high-payoff research programs that have the potential to provide our nation with an overwhelming intelligence advantage over our future adversaries. Additional information on IARPA and their research may be found on their web site: [www.iarpa.gov](http://www.iarpa.gov)

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